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REMARKS

Claims 1-17 are pending in the application. The Applicants respectfully request reconsideration of claims 1-6, 8-15, and 17. Claims 7 and 16 are cancelled.

The drawings stand objected to under 37 CFR 1.83(a), reciting that the drawings must show every feature of the invention specified in the claims. Therefore, the "beam-shaping and power controlling systems enabling TDMA switching between shaped beam modes and beam spot modes of said antenna" are designated in the amended drawings as block "31." Page 7, line 26-page 8, line 6 of the Detailed Description has also been amended to include the aforementioned designation. The drawings are further amended to include a processor 65, an interference-check mechanism 67, and a power check mechanism 69 all from page 13, lines 15-22 in accordance with the presently amended claims. No new matter has been added.

Claims 1-17 stand rejected under 35 U.S.C. 103(a) as being anticipated by Dent (U.S. Patent 5,555,257) in view of Reudink et al (U.S. Patent 4,188,578). As mentioned, the Applicants respectfully request reconsideration of claims 1-6, 8-15, and 17; and claims 7 and 16 are cancelled. According to the Office Action, regarding claim 1, Dent discloses a multimode transmission system (FIG. 6) using TDMA comprising: a TDM switch (FIG. 16; block 1601) coupled to a data signal (1600; CALLING CHANNEL DATA; and TIMING CONTROL) (col. 14, lines 40-53), said data signal

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comprising a plurality of satellite services (1600; CALLING CHANNEL DATA; and TIMING CONTROL), said TDM switch multiplexing said data signal into a TDMA signal (output of block 1601) comprising a plurality of TDMA transmission frames, each TDMA transmission frame having a plurality of downlink frame time slots, wherein each of said downlink frame time slots is dynamically allocated to one of said plurality of satellite services (col. 18, lines 3-21); a modulator (1602) coupled to said TDM switch (1601) and receiving said TDMA signal, said modulator modulating said TDMA signal to generate a modulated TDMA signal (output of 1602) (col. 18, lines 21-26). The Office Action recognizes that a beam-shaping, power-controlling, transmit antenna is not disclosed in Dent.

The Office Action alleges that Reudink discloses the beam-shaping and power-controlling systems enabling TDMA switching between shaped beam modes and spot beam modes of said antenna.

Claim 1 is amended to include "said plurality of satellite services, which comprise a point-to-point service comprising a portion of said downlink frame time slots dedicated for radiating multiple spot beams, wherein said spot beams are pointed to cover downlink cells, said pointing dynamically scheduled from data queues" from page 13, lines 9-16, which neither Dent nor Reudink disclose or suggest. Further, claim 1 is amended to include "a processor comprising said data queues, said processor further

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comprising a power check mechanism checking that required power for said multiple spot beams is less than or equal to a total available radio frequency power in said transmit antenna", from page 13, lines 15-22, also not disclosed or suggested in Dent or Reudink.

As mentioned, the Dent reference does not disclose the claimed antenna. The beam-shaping and beam power control of the antenna allow for the dynamic partitioning of a satellite system's capacity between wide-area broadcasts and localized point-to-point service and efficient utilization of the satellites transmission power. (page 6, lines 7-10.) Further, the TDMA switching reduces the required number of antennas for receiving various services.

The Office Action alleges that Reudink includes an antenna system similar to the claimed antenna. More importantly, Reudink does not disclose or suggest the point-to-point satellite service having "pointing dynamically scheduled from data queues" and a processor "comprising said data queues" for regulating frequency usage. Therefore, even if Dent discloses a similar TDM switch and a similar modulator and Reudink discloses a similar transmit antenna, neither discloses or suggests control features, such as the claimed processor data queues, for efficient utilization of the satellites transmission power.

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Applicants believe the amended claim 1 is new and nonobvious because the prior art provides no teachings or suggestion for the satellite system claimed by the Applicants. No new matter has been added.

Claims 2-6 and 8-11 depend from the amended claim 1 and are believed to be allowable for at least the aforementioned reasons.

Claim 5 is amended to include "wherein messages from said cell-cast function are converted to multi-cast messages as a function of an RF transmission power increase above a regulated limit", from page 14, lines 10-15, also not disclosed in Dent or Reudink. This conversion function allows efficient utilization of the satellites transmission power and eliminates concerns regarding potentially exceeding the power flux density imposed by FCC regulations. Therefore, claim 5 is believed to be allowable for this additional reason. No new matter has been added.

According to the Office Action, regarding claim 12, Dent discloses a satellite system (FIG. 6) comprising: a ground station (400); a satellite (410) in orbit and in communication with said ground station (400) (see FIG. 6), said satellite having a multimode transmission system using TDMA comprising: a TDM switch (FIG. 16; block 1601) coupled to a data signal (1600; CALLING CHANNEL DATA; and TIMING CONTROL) (col. 14, lines 40-53), said data signal comprising a plurality of satellite services (1600; CALLING CHANNEL DATA; and TIMING CONTROL), said TDM

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switch multiplexing said data signal into a TDMA signal (output of block 1601) comprising a plurality of TDMA transmission frames, each TDMA transmission frame having a plurality of downlink frame time slots, wherein each of said downlink frame time slots is dynamically allocated to one of said plurality of satellite services (col. 18, lines 3-21); a modulator (1602) coupled to said TDM switch (1601) and receiving said TDMA signal, said modulator modulating said TDMA signal to generate a modulated TDMA signal (output of 1602) (col. 18, lines 21-26); and a beam-shaping, power-controlling, transmit antenna (1603 and antenna (not shown; inherent) or FIG. 18; 1800) coupled to said demodulator and broadcasting said modulated TDMA signal using at least one downlink beam, said at least one downlink beam having a shape and number determined by said data signal (col. 9, lines 60-65, and col. 18, lines 40-57 and col. 23, line 48 to col. 24, line 5 and col. 29, lines 4-5).

Claim 12 has been amended to include "said plurality of satellite services, which comprise at least one of a broadcast service or a point-to-point service, said point-to-point service comprising a portion of said downlink frame time slots dedicated for radiating multiple spot beams, wherein said spot beams are pointed to cover downlink cells, said pointing dynamically scheduled from data queues" from page 13, lines 9-16, which neither Dent nor Reudink disclose or suggest. Further, claim 12 is amended to include "a satellite on-board processor comprising said data queues, said processor

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further comprising a power check mechanism checking that required power for said multiple spot beams is less than or equal to a total available radio frequency power in said transmit antenna", from page 13, lines 15-22, also not disclosed or suggested in Dent or Reudink.

As was discussed regarding claim 1, this limitation is novel and non-obvious with regard to the Dent and Reudink references. Neither reference discloses or suggests use of on-board pointing control dynamically scheduled from processor data queues.

Applicants therefore believe the amended claim 12 is new and nonobvious because the prior art provides no teachings or suggestion for the satellite system claimed by the Applicants. No new matter has been added.

Claims 13-15 depend from the amended claim 12 and are believed to be allowable for at least the aforementioned reasons.

According to the Office Action, regarding claim 17, Dent discloses a method for satellite system (FIG. 6) comprising the steps of: generating a data signal comprising plurality of data services (1600; CALLING CHANNEL DATA; and TIMING CONTROL); generating a timing signal (TIMING CONTROL); multiplexing said data signal to generate a TDMA signal (output of block 1601) having a plurality of downlink frame each downlink frame having a plurality of downlink frame slots, wherein each of

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said downlink frame time slots is dynamically allocated to one of said plurality of satellite services (col. 18, lines 3-21); modulating said TDMA signal to generate a modulated TDMA signal (output of 1602) (col. 18, lines 21-26); broadcasting said modulated TDMA signal using at least one downlink beam. said at least one downlink beam having a shape and number determined by said data signal (col. 9, lines 60-65, and col. 18, lines 40-57 and col. 23, line 48 to col. 24, line 5 and col. 29, lines 4-5.)

Claim 17 is further amended to include "satellite services comprising a broadcast service and a point-to-point service, wherein said multi-cast/broadcast data service comprises a cell-cast function;" and "converting messages from said cell-cast function to multi-cast messages as a function of an RF transmission power increase above a regulated limit" from page 14, lines 10-14, which the Dent and Reudink reference neither discloses nor suggest. (page 6, lines 7-10.)

As discussed regarding claim 5, Applicants therefore believe the amended claim 17 is new and nonobvious because the prior art provides no teachings or suggestion for the satellite system claimed by the Applicants. No new matter has been added.

In light of the above amendments and remarks, Applicants submit that all rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any

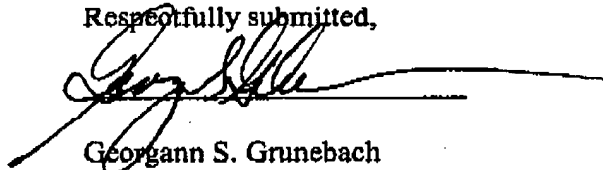
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questions or comments, which would place the application in better condition for allowance, he is respectfully requested to call the undersigned attorney.

Please charge any fees required in the filing of this amendment and Request for Continued Examination to deposit account 50-0476.

Respectfully submitted,



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